

## CLAIMS:

1. A communication processing device that links a home electric device to a network, characterized by comprising:

a communication portion that sends/receives data to/from the home electric device;

a detection portion that detects a communication error status with the home electric device;

a storage portion that stores the communication error status detected by the detection portion; and

a setting portion that sets a transmission rate with the home electric device on a basis of a last communication error status stored in the storage portion and a latest communication error status detected by the detection portion.

2. The communication processing device according to Claim 1, further comprising:

an identification portion that identifies a type of the home electric device as any one of a normally OFF home electric device for which a power supply is switched OFF when not in use and the power supply is switched ON when used, an always ON home electric device that is kept run with a power supply being kept switched ON, and a stand-by home electric device for which a power supply is switched to a stand-by state when not in use and the power supply is switched ON when used,

wherein the setting portion sets the transmission rate

with the home electric device on the basis of the last communication error status stored in the storage portion and the latest communication error status detected by the detection portion depending on the type of the home electric device identified by the identification portion.

3. The communication processing device according to Claim 2, wherein:

the storage portion includes a normally OFF storage portion that stores the communication error status detected by the detection portion when the home electric device is the normally OFF home electric device; and

the setting portion sets the transmission rate with the home electric device on the basis of the last communication error status stored in the normally OFF storage portion and the latest communication error status detected by the detection portion when the home electric device is the normally OFF home electric device.

4. The communication processing device according to Claim 3, wherein:

the detection portion detects a communication error ratio with the normally OFF home electric device from a time at which the power supply is switched ON to a time at which the power supply is switched OFF when the home electric device

is the normally OFF home electric device;

the normally OFF storage portion stores the communication error ratio detected by the detection portion when the home electric device is the normally OFF home electric device; and

the setting portion sets the transmission rate with the home electric device on the basis of a last communication error ratio stored in the normally OFF storage portion and a latest communication error ratio detected by the detection portion when the home electric device is the normally OFF home electric device.

5. The communication processing device according to any of Claims 2 through 4, wherein:

the storage portion includes an always ON storage portion that stores the communication error status detected by the detection portion when the home electric device is the always ON home electric device; and

the setting portion sets the transmission rate with the home electric device on the basis of the last communication error status stored in the always ON storage portion and the latest communication error status detected by the detection portion when the home electric device is the always ON home electric device.

6. The communication processing device according to Claim 5, wherein:

the detection portion detects a communication error ratio with the home electric device for every certain period when the home electric device is the always ON home electric device;

the always ON storage portion stores the communication error ratio detected by the detection portion when the home electric device is the always ON home electric device; and

the setting portion sets the transmission rate with the home electric device on the basis of a last communication error ratio stored in the always ON storage portion and a latest communication error ratio detected by the detection portion when the home electric device is the always ON home electric device.

7. The communication processing device according to any of Claims 2 through 6, wherein:

the storage portion includes a stand-by storage portion that stores the communication error status detected by the detection portion when the home electric device is the stand-by home electric device; and

the setting portion sets the transmission rate with the home electric device on the basis of the last communication error status stored in the stand-by storage portion and the

latest communication error status detected by the detection portion when the home electric device is the stand-by home electric device.

8. The communication processing device according to Claim 7, wherein:

the detection portion detects a communication error ratio with the home electric device for every certain period when the home electric device is the stand-by home electric device;

the always ON storage portion stores the communication error ratio detected by the detection portion when the home electric device is the stand-by home electric device; and

the setting portion sets the transmission rate with the home electric device on the basis of a last communication error ratio stored in the stand-by storage portion and a latest communication error ratio detected by the detection portion when the home electric device is the stand-by home electric device.

9. The communication processing device according to any of Claims 4, 6, and 8, wherein:

the setting portion sets a transmission rate lower than a transmission rate at which the latest communication error ratio is detected when both the last communication error ratio

stored in the storage portion and the latest communication error ratio detected by the detection portion are equal to or higher than a specific threshold value, and sets a transmission rate higher than the transmission rate at which the latest communication error ratio is detected when both the last communication error ratio stored in the storage portion and the latest communication error ratio detected by the detection portion are lower than the specific threshold value.

10. A communication program characterized by causing a microcomputer incorporated in a communication processing device that links a home electric device to a network to function as portions as follows:

- a communication portion that sends/receives data to/from the home electric device;

- a detection portion that detects a communication error status with the home electric device;

- a storage portion that stores the communication error status detected by the detection portion; and

- a setting portion that sets a transmission rate with the home electric device on a basis of a last communication error status stored in the storage portion and a latest communication error status detected by the detection portion.

11. A communication processing device that links a home

electric device to a network, characterized by comprising:

a communication portion that sends/receives data to/from the home electric device;

a save portion that saves plural transmission rates settable in the communication processing device; and

a setting portion that sets a transmission rate on a basis of plural transmission rates settable in the home electric device and received at the communication portion and the plural transmission rates saved in the save portion.

12. The communication processing device according to Claim 11, wherein:

the setting portion sets a highest transmission rate among coinciding transmission rates in the plural transmission rates saved in the save portion and the plural transmission rates settable in the home electric device.

13. The communication processing device according to Claim 11 or 12, wherein:

the communication portion sends a transmission rate notice to the home electric device to inform a transmission rate that the setting portion is to set before the setting portion sets the transmission rate; and

the setting portion sets the transmission rate when the transmission rate informed by a reply to the transmission rate

notice from the home electric device received at the communication portion coincides with the transmission rate to be set.

14. The communication processing device according to Claim 13, wherein:

the communication portion sends confirmation data to the home electric device to confirm that communications are enabled with the home electric device at the set transmission rate after the setting portion sets the transmission rate.

15. The communication processing device according to Claim 14, wherein:

the communication portion sends the confirmation data to the home electric device when a predetermined time has passed since the reply to the transmission rate notice is received from the home electric device.

16. A communication program characterized by causing a microcomputer incorporated in a communication processing device that links a home electric device to a network to function as portions as follows:

a communication portion that sends/receives data to/from the home electric device;

a save portion that saves plural transmission rates



settable in the communication processing device; and

a setting portion that sets a transmission rate on a basis of plural transmission rates settable in the home electric device and received at the communication portion and the plural transmission rates saved in the save portion.

17. A home electric device that is linked to a network via a communication processing device, characterized by comprising:

a communication portion that sends/receives data to/from the communication processing device;

a storage portion that stores a communication error status with the communication processing device; and

a setting portion that sets a transmission rate with the communication processing device on a basis of communication error statuses in past times stored in the storage portion.

18. The home electric device according to Claim 17, wherein:

the storage portion stores a transmission rate at which communications with the communication processing device failed; and

the setting portion sets a transmission rate lower than the transmission rate at which communications with the communication processing device failed when the transmission

rate at which communications with the communication processing device failed is stored in the storage portion.

19. The home electric device according to Claim 17 or 18, wherein:

the storage portion stores a transmission rate at which communications with the communication processing device succeeded; and

the setting portion sets the transmission rate at which communications with the communication processing device succeeded when the transmission rate at which communications with the communication processing device succeeded is stored in the storage portion.

20. A communication program characterized by causing a microcomputer incorporated in a home electric device that is linked to a network via a communication processing device to function as portions as follows:

a communication portion that sends/receives data to/from the communication processing device;

a storage portion that stores a communication error status with the communication processing device; and

a setting portion that sets a transmission rate with the communication processing device on a basis of communication error statuses in past times stored in the storage portion.

21. A home electric device that is linked to a network via a communication processing device, characterized by comprising:

a save portion that saves plural transmission rates settable in the home electric device;

a generation portion that generates supported transmission rate specifying information to inform the plural transmission rates saved in the save portion; and

a communication portion that sends the supported transmission rate specifying information to the communication processing device.

22. The home electric device according to Claim 21, wherein:

the communication portion sends the supported transmission rate specifying information to the communication processing device upon receipt of a connection request from the communication processing device.

23. The home electric device according to Claim 21 or 22, wherein:

the communication processing portion receives a transmission rate notice to inform a transmission rate that the communication processing device is to set from the

communication processing device; and

the home electric device further comprises a setting portion that sets the informed transmission rate when the transmission rate informed by the transmission rate notice coincides with any one of the transmission rates saved in the save portion.

24. A communication program characterized by causing a microcomputer incorporated in a home electric device that is linked to a network via a communication processing device to function as portions as follows:

a save portion that saves plural transmission rates settable in the home electric device;

a generation portion that generates supported transmission rate specifying information to inform the plural transmission rates saved in the save portion; and

a communication portion that sends the supported transmission rate specifying information to the communication processing device.

25. A home network system, comprising:

the communication processing device according to any of Claims 1 through 9 and 11 through 15; and

the home electric device according to any of Claims 17 through 19 and 21 through 23.